



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/831,825	05/15/2001	Amita Chandra	WEICKM10	9533
23599	7590	05/26/2004	EXAMINER	
MILLEN, WHITE, ZELANO & BRANIGAN, P.C. 2200 CLARENDON BLVD. SUITE 1400 ARLINGTON, VA 22201			OLSEN, KAJ K	
			ART UNIT	PAPER NUMBER
			1753	

DATE MAILED: 05/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

AS

Office Action Summary

Application No.

09/831,825

Applicant(s)

CHANDRA ET AL.

Examiner

Kaj K Olsen

Art Unit

1753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 and 17-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 17-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-11 and 17-25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. In amended claim 1, it is unclear if the liquid of step iv is the same thing as the liquid electrolyte of the preamble. Clarification is requested.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1-11 and 17-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leonard et al (USP 3,681,136) in view of Oehme et al (Liquid Electrolyte Sensors from Sensors-A comprehensive survey, part I, 1991. Oehme is being cited for the first time with this office action. Its use here was necessitated by the applicant's amendment to the claims.

6. Leonard discloses a method of producing a porous solid comprising preparing a fluid mixture including AgCl and KCl that has the claimed immiscibility properties, cooling the fluid mixture below the solidification point to form one crystalline phase (AgCl), and removing the second phase (col. 4, line 62 through col. 6, lines 28 and fig. 1). Leonard does not appear to disclose the step of filling the pores of the porous solid with a liquid. However, Leonard is

Art Unit: 1753

drawn to a method of producing a reference electrode. Oehme teaches that reference electrodes must be placed in electrical communication with the sample of interest. This is most typically done by exposing the Ag/AgCl of the reference electrode to a liquid electrolyte so as to established the electrical connection. See section 7.1.2.3 on pages 251-253, especially fig. 7.6 and Table 7-5. Exposing the porous material of Leonard to an electrolyte would presumably fill the pores of Leonard. It would have been obvious to one of ordinary skill in the art at the time the invention was being made to utilize the teaching of Oehme for the reference electrode of Leonard so as to ensure that the Ag/AgCl is in appropriate electrical communication with the sample.

7. With respect to the cooling step being non-segregating, the steps taught in col. 4, line 73 through 5, line 7 would appear to read on applicant's quenching process, which is what the applicant appears to be claiming with the non-segregating language.

8. With respect to the eutectic composition, see col. 3, lines 19-34.

9. With respect to solvent extraction, the use of leaching with hot water (col. 3, line 69 through col. 4, line 6) would read on a solvent extraction.

10. AgCl is water-insoluble, while KCl is water-soluble.

11. With respect to the particular mixture of claim 9, see col. 6, lines 29-35.

12. With respect to the electrochemical cell claims, the AgCl of Leonard when soaked with electrolyte is clearly functioning in part as an electrolyte.

13. With respect to the pore sizes, finding the appropriate pore sizes requires only routine skill in the art.

Art Unit: 1753

14. With respect to the specified cooling rate, finding the appropriate rate to cool a system to arrive at the desired product requires only routine skill in the art.

15. With respect to the catalyst, the instant invention appears to evidence that porous AgCl is a catalytic substance.

16. With respect to the pore structure, see fig. 2 and 3 of Leonard.

17. With respect to the claimed porosity, see col. 2, lines 30-57. Alternatively, finding the desired porosity of a porous solid requires only routine skill in the art.

18. Claims 10, 11, 18, 19, 20, 21-23 and 25 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Shen et al (USP 5,650,054).

19. Shen discloses an electrochemical gas sensor with electrodes catalytic active to CO gas (col. 1, lines 29-55). The sensor comprises a porous electrolyte (see e.g. col. 8, lines 21-63). Although the electrolyte is not disclosed as being made by the process of claim 1, the determination of patentability for the claim is based on the product itself. Because the product of the claim is identical to the invention of Shen the process from which it was made is the same as or obvious over the process utilized by Shen (see *In re Thorpe*, 777 F.2d 695, 698).

20. With respect to the filling with electrolyte, see claim 1 where it states that the electrolyte must be permeable to water. With respect to the claimed catalyst, the electrodes of Shen are catalytically active to CO. With respect to the pore sizes, finding the appropriate pore sizes requires only routine skill in the art.

Response to Arguments

21. Much as applicant's arguments with respect to the claims are moot in view of the new ground(s) of rejection using Oehme. However, the examiner will address some of the points the applicant made concerning the teachings of Leonard and Shen. With respect to the teaching of Leonard, applicant urges that it is unclear if the material of Leonard is capable of having its pores filled with liquid. This is unpersuasive. First, Leonard is clearly drawn to a porous material (col. 2, lines 30-57) and any porous material is capable of having its pores filled with liquid. In addition, Leonard teaches the step of leeching out the soluble salt (col. 3, line 69 through col. 4, line 6). That leeching step clearly indicates that the pores of Leonard can be filled with a liquid. Finally, because Leonard is drawn to the same essential process as that of the instant invention (i.e. the formation of porous AgCl from a combination of AgCl and KCl), the porous solid of Leonard would presumably would be capable of being filled with fluid.

22. With respect to Shen, applicant urges that Shen does not teach the use of a porous proton conducting membrane. This is unpersuasive. Because the membrane of Shen is disclosed as being hydrated (see abstract), then it clearly would read on porous because it was capable of taking up water. See claim 1 which states that the electrolyte membrane must be permeable to water. In order to be able to take up water, there must be pores present for that taking up of water. Applicant also urges that Shen does not disclose a porous solid made by the process of claim 1 because Shen doesn't teach the use of inorganic materials. First, claim 1 doesn't specify anything about inorganic material. In addition, Shen does disclose the use of inorganic materials as the electrolyte (col. 10, lines 15-22). Those inorganic materials are materials that require permeability to water (see claim 1). With respect to Shen not teaching the process of claim 1,

Art Unit: 1753

MPEP 2113 teaches that product claims are not to be bounded by the process for which they were made. Applicant also urges that Shen teaches away from the use of liquid electrolytes. However, Shen replaces those liquid electrolytes with a porous solid material that has been hydrated. This reads on the claimed product. Applicant also urges that Shen has no liquid water, only water vapor. The examiner fails to appreciate the significance of this distinction. Regardless of whether the membrane is hydrated with water vapor or liquid water, the end result is the same.

Conclusion

23. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kaj Olsen whose telephone number is (571) 272-1344. The

Art Unit: 1753

examiner can normally be reached on Monday through Thursday from 6:30 A.M. to 4:00 P.M. and on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen, can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Kaj Olsen', with a long horizontal flourish extending to the right.

Kaj Olsen Ph.D.
Primary Examiner
AU 1753
May 25, 2004